INSTITUTIONS, REGULATORY FRAMEWORK AND LABOUR MARKET OUTCOMES IN NIGERIA

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Abstract

This paper examines the impact of institutions and regulatory framework on labour outcomes in Nigeria, using static and dynamic analytical methods involving cointegration and Error Correction Model (ECM) techniques with annual data covering 1970 to 2012. The study shows that minimum wage index has significant positive impact on unemployment. Further it is shown that union density has insignificant effect on unemployment, as well on employment across public and industrial sectors. Union density is also found to have positive but insignificant effect on wage in both industrial and public sectors. While minimum wage has insignificant negative effect on both aggregate and public sector employment, its effect on industrial sector employment is mixed. On the other hand, union density has non-significant positive effect on employment across sectors. The impact of minimum wage on industrial sector wage is positive and highly significant, but the effect on public sector wage is minimal. Implication of the results is that the design and implementation of institutional and regulatory framework should be done with caution, as they may yield unintended results.

JEL Codes: J20, J28, J52

Introduction

The labour market is very important in an economy as activities within it determine vital economic outcomes and growth. Hence, the efficient functioning of the labour market has implications for social welfare (Restrepo and Andrea, 2005; Petrin and Sivadasan, 2006). Unlike any other markets, the factor market especially labour market is characterised by several structural factors that inhibit its efficient functioning. The efficient functioning of all markets in general and labour market in particular depends to a very large extent on the institutional and regulatory environment existing in any particular economy (Standing, 1991; Oyejide, 1999). Institutions and regulatory framework such as economic, social and judicial measures that govern hiring, firing and collective bargaining processes and other labour market activities have implications on employment and wage determination as well as productivity. Similarly, the nature and structure of the labour market in a particular economy, such as the extent of formality

and informality, do not only affect the functioning of such market but also the effectiveness of its institutional and regulatory framework (Chen, 2007; Sanchez-Puerta, 2010).

Several reasons have been advanced for the existence of labour market institutions and regulations. A key reason is due to market failure which does not give room for optimal resource allocation and ultimately affects market outcomes. Hence, institutions and regulations are needed to not only ensure optimality, but also protect workers. However, several empirical evidence have shown that while institutions and regulations are put in place to enhance the performance of labour market, they often have unintended negative impact on market outcomes such as employment (unemployment), productivity and earnings (Rama, 1995; Heckman and Pagés, 2000; Downes et al, 2000; Schindler, 2009; Betcherman, 2013).

In Nigeria, institutional and regulatory framework covering the establishment and protection of workers' right, protection of the vulnerable workers, enforcement of minimum wage compensation, and provision of decent working conditions among others are weak (Okoronkwo, 2008). The Nigerian labour market also has a very large informal sector, larger than the formal, which affects the efficacy of the labour market institutions and regulatory framework. The extent to which all these have impacted on labour market outcomes such as employment, unemployment, wages and productivity are unclear. Given the importance of labour in the determination of overall macroeconomic activities, the literature is replete with theories and empirical studies on the interactions between institutions, regulatory environment and the labour market outcomes. However, studies in this area have been concentrated in developed economies, OECD, the US and Latin America, with little attention on developing economies, especially Africa in general and Nigeria in particular. This has limited the understanding of the impact of institutions and regulations in Nigerian labour market. Hence, this study fills the observed vacuum in the literature by examining the impact of institutions and regulatory framework on labour market outcomes in Nigeria, with particular focus on unemployment, employment and wage determination.

The remaining part of the paper is divided into five sections. Section 2 focuses on the overview of institutional and regulatory framework of Nigerian labour market. Section 3 provides a brief review of theoretical, empirical and methodological issues related to the subject matter of the paper. Section 4 describes the methodological approach adopted for the study, data

source and variable measurement. In section 5 a discussion of the empirical results and their implications is made. Finally, the concluding remarks are provided in section 6.

2. Nigerian Labour Market Institutional and Regulatory Framework

The structure of the Nigerian labour market is similar to that of any other developing country. Generally, the labour market is made up of two distinct but highly interwoven segments – the formal and the informal. Hiring and firing as well as compensation of employees and other employer-employee relations within the formal segment are governed by official (legal) institutional rules and regulations; while activities within the informal segment of the market are outside of the coverage of official rules and regulations (Ajakaiye and Akerele, 1996; Olofin and Folawewo, 2006). Consequently, the existing labour market institutions and regulations reviewed in this paper are those related to the employment, compensation and other market issues within the formal segment which comprises of large privately owned firms and public organisations.

Nigeria is a member of the International Labour Organisation (ILO) and has also ratified several of the Organisation's conventions and treaties. As a signatory to ILO treaties, the institutional and regulatory frameworks existing in the country are therefore in line with ILO and fall within international standards (Okoronkwo, 2008); though their functioning is often below the acceptable world standards. The formation of regulations and establishment of institutions saddled with implementation of regulations are usually done through legislative processes. Hence, laws governing labour relations have either emerged through decrees in the case of military regimes or through Act of parliaments in case of democratic era.

The administration of labour matter in Nigeria is governed by Labour Act (Decree) No. 21 of 1974 and its subsequent amendments such as Labour Act 1990 and Labour Act 2004. Generally, the Labour Act covers rules and regulations concerning relationship between employers and employees, protections of workers in terms of wages, contracts of employment and terms of employment, and all aspects of working condition. Similarly, the Trade Unions Act (Cap. T14 L.F.N 2004) provides guidelines for formation of trade unions which are usually in existence for advocacy of workers' rights and welfare. Another form of regulation guiding interactions among players within the Nigeria labour market is the Trade Dispute Act 2004 (Cap. T8 L.F.N). This Act sets up modalities for settling and resolving conflicts that may arise between employers and employees.

A major feature of the Nigerian labour market is the application of Minimum Wage (MW) legislation as a means of protecting low income groups of worker and giving access to some basic standards of living through specification of least basic salaries that different categories of workers should be entitled to. Several MW laws have been implemented in the country over the past years, the latest being the National Minimum Wage (Amendment) Act 2011[1]. It is worthy to note that any time a MW agreement is reached and MW Act becomes operational, its implementation usually causes hiccups. Since MWs are set by the Central (Federal) government, State government (which is the second tier of government) more often find it difficult to implement due to affordability problem. In the same vein, many employers within the private sector also do not adhere to the MW laws. As a matter of fact, insistence on implementation of MW by unions has always brought about industrial disputes such as strikes; while employers (both within public and private sectors) usually threat workers with firing, some of such threats have been carried out resulting in several job losses

Other sundry laws operational within the labour market include the National Health Insurance Scheme (Amendment) Act 2011 and the Pension Reform Act 2004, which has now been replaced by the new Pension Reform Act no 2, of 2014. These two legislations are relatively new in the Nigerian labour market and yet to gain full implementation across all the economic sectors and by employers. All these different regulations have played tremendous roles in shaping relationships within the Nigerian labour market over the years.

The implementation and enforcement of compliance to the set of rules and regulations spelt out in the various Acts of laws mentioned above are vested in the hands of different government Ministries, Departments and Agents (MDAs) all of which form the labour market institutions. First, the Federal Ministry of Labour and Productivity (FMLP) acts as the apex labour market institution in the country. FMLP is saddled with the responsibility of overall coordination of employment, compensation and labour and industrial matters. On the workers side, two main trade umbrella unions – Nigerian Labour Congress (NLC) and Trade Union Congress (TUC) are those that fight for protection of workers' right[2]. Similarly, two bodies – the Industrial Arbitration Panel (IAP) and the National Industrial Court (NIC) form the judiciary institutions in charge of settlement of labour market law suits. Another ministry whose activity is

[1] See Folawewo, 2009 for a comprehensive review of the various minimum wage legislations Nigeria.

[2] There are several trade unions in Nigeria, nearly every profession has one form of trade union or the other; however, all trade associations and labour unions are either members of NLC or TUC.

not directly related, but indirectly covers some aspects of labour market is the Federal Ministry of Finance (FMF). Each of these institutions has distinct but interwoven roles for ensuring smooth running and efficient functioning of the Nigerian labour market.

Rules and regulations emanating from the various Acts and legislations governing the operations within the labour market are usually poorly implemented and most often ineffective. As noted earlier, regulations partly cover the entire market with the large informal segment being uncovered. In the covered segment, regulations are only effective to a limited extent, in terms of compliance, in the public sector; whereas, in the private sector the compliance level is low, due to poor monitoring and implementation. The management of labour market institutions is characterised with ineptitude and corruption, result of which is manifested in inefficacy of rules and regulations. This has also given room to lack of adherence to employment and compensation laws among employers across sectors in the market. As a result, workers are made to suffer severe consequences. In reaction to the observed phenomenon, trade unions have over the years been involved in industrial disputes, majority of which often resulted into work stoppages. Both the IAP and the NIC have had causes to step into several industrial disputes. However, resolution of trade disputes has usually taken a tripartite form in which representatives of government, employers and employees come together to reach consensus. As a matter of fact, trade disputes and resolutions are regular features of the Nigerian labour market.

The ineffectiveness of Nigerian labour market institutional and regulatory framework has affected the performance of the market in several ways. The beneficiaries of the ineffectiveness are usually the employers, while workers on the other hand are usually victims of casualisation of employment, inadequate remuneration (underpayment), exposure to and inadequate care for job and health hazards, and denial of pensions. A noticeable practice across sectors in Nigeria is the phenomenon of contract employment, whereby firms are not engaging in direct employment rather they contract employment to recruitment agencies who pay employees remuneration that are below industry standards. In addition, contract workers are not regarded as core workers, and they lack access to benefits accruable to permanent and/or core workers. The overall effects of these have been lack of motivation for improved productivity among workers and widening of inequality gap in the country.

3. Literature Review

This section presents a review of some related past studies. Some studies, such as Sanchez-Puerta (2010) presented review of literature under several labour market institutions[3]. For brevity, this study makes a general presentation of the literature concentrating on theoretical and empirical reviews. The theoretical stance on the impact of institutions and regulatory framework on labour market outcomes in the literature are of two major approaches: the mainstream or traditional approach and a more recent one called the socio-economic approach[4]. The two approaches disagree in almost all of their contributions to literature. Basically, the distinction between the two approaches, which is not the subject matter of this review anyway, is more in the methodology adopted in arriving at their conclusions. The former adopts a mechanical analysis of the labour market, where analytical, more quantitative and advanced econometric techniques are employed (see Fallon and Very, 1998). The latter adopts more trans-disciplinary insights in the form of ideas, concepts, theories, and empirical data among others in explaining the nature of the labour market.

The mainstream philosophy rests on the belief that there is a relationship between wage rates and the demand and supply of labour. Thus, as wage rate increases, demand for labour falls and supply of labour increases. Given this simple analysis, this school of thought advocated a more flexible and efficient labour markets by removing institutions that distorts the forces of demand and supply. By the proponents of labour market flexibility (Blank and Freeman, 1994; Burki and Perry, 1997; Blanchard and Wolfers, 2000; Forteza and Rama, 2002; Besley and Burgess, 2004), any distortion of market mechanism will impede growth and employment for the following reasons: First, most institutional interventions create incentives for market participants to behave differently than they otherwise would. This prevents wages to equal marginal product in equilibrium, thus, making misallocation of resources inevitable. Second, regulations such as minimum wage make adjustment of labour markets to different types of economic changes in a

[3] Sanchez-Puerta (2010) presented her review of literature under four sub-headings: (i) Effects of employment protection legislation on labour market outcomes, (ii) Shifting from job to worker protection, (iii) Effects of active labour market policies on labour market outcomes, and (iv) Causes and consequences of formality and informality in the labour market.

[4] Fleetwood (2008) called this approach 'a socio-economic approach'. He stated that it consists in the work of heterodox economists such as economic-sociologists, evolutionary economists, feminists, (Old) Institutionalists, Marxists, post-Keynesians, regulationists, and segmented labour market theorists, as well as those who would not describe themselves as 'economists', yet who write on labour markets, coming from disciplines like: industrial or employment relations, labour law, human resource management, education research, organisational and management theory, sociology of work and employment, state theory, urban geography and so on.

dynamic setting difficult. Finally, regulations that redistribute economic 'rents' from capital to labour (for instance, collective bargaining schemes, and expansionary fiscal programs to fund public employment and so on.) reduce investors' profits. This consequently discourages investment and the prospects of economic growth (Cesar and Chong, 2003).

However, the so called socio-economic approach constitutes widespread contributions of many writers, who see labour market differently from the mainstream economists. Proponents of this idea observed that labour market only exists because different sets of agents interact with different sets of social, economic, cultural, political, ideological and social-psychological phenomena, in different spatio-temporal locations (Fleetwood, 2008). Thus, they argued that these phenomena are crucial to the analysis of labour markets. Given the above, they incorporated institutions and regulatory frameworks (IRF) as important determinants of the dynamics in the labour market. The main arguments of this body of knowledge are that IRF can fulfil important redistributive roles particularly to benefit the vulnerable categories of workers; in addition, provisions such as labour standards may create desirable pressures on the employers to focus on the enhancement of their labour productivity whether it is through training or technical innovations (Freeman, 1993); ultimately, standards on mandated benefits may help to solve the moral hazard issues and all the workers will benefit (Summers, 1998).

According to Akerlof (1984), by reinforcing job security, employment protection legislation (EPL) may enhance productivity performance, as workers will be more willing to cooperate with employers in the development of the production process. By this, EPL can be expected to reduce labour turnover. Thus, unemployment or employment duration is expected to be positively correlated with the degree of employment protection. Because EPL ensures long-term labour contract, it creates an incentives for employer to invest in the training and well being of workers, thus, increase human capital and labour productivity. However, there are contrasting arguments in the literature as regards the benefits of EPL. When regulations are very strict, Bertola (1992) opined that firms may become more cautious in adjusting their workforce with the ultimate effect of reducing labour turnover. In the same vein, if the degree of strictness focuses on permanent contract than temporary contract, employers are likely to shift attention to temporary recruitment. Thus, as argued by Bentolila and Dolado (1994), those who are able to maintain a permanent contract will enjoy an even higher level of job security, bringing about an

increase in wage pressure. Also, in a case where hiring and firing costs cannot be transferred into lower wages, this increases total cost of labour and leads to a reduction in recruitment.

Several empirical studies have been carried out to investigate the link between institutional regulations and labour market outcomes in relation to the two theoretical stands. In a study on India, Besley and Burgess (2004) found that pro-worker regulations are associated with low investment, employment, productivity, output and high urban poverty. The study further revealed that this type of regulation facilitated the existence and growth of a very large informal sector. The findings of the study have been criticised on several grounds, for example, Bhattarcharjea (2007) opined that the use of state-level labour regulation might be inappropriate. In addition, it was argued that scoring of several individual measures was erroneous, and that combination of scores as in Besley and Burgess was not comparable across states.

Petrin and Sivadasan (2006) studied the effect of EPL on Chilean manufacturing firms for the periods 1979-1996 using plant-level production data. Results of the study showed little evidence of a negative impact of EPL on labour demand; however, it found that EPL introduced economically and statistically significant costs to the economy. They argued that firing costs drove a wedge between the marginal revenue product and its marginal cost. The result showed a large and significant increase in both the mean and the variance of the within-firm gap between the marginal product of labour and wage, for both white and blue collar workers.

In a comprehensive cross country study Botero *et al* (2003) investigated the economic effect of labour market regulations such as employment laws, industrial and collective bargaining laws and social security laws for 85 countries. They found out that richer countries regulate labour less often that the poor ones, instead they provide more social securities. Also, they argued that heavier regulation of labour is detrimental to labour force participation and generates higher unemployment. This finding was corroborated by Elmeskov *et al* (1998). However, the study by Belot and Van Ours (2004) showed that EPL lowered unemployment rate. It was also shown that male participation in the labour force is at disadvantage as there are more protective employment, collective relations, and social security laws that favour females. In another study by Cesar and Chong (2003) for 76 countries, they argued that growth is adversely affected by thicker labour codes. Thus, they opined that growth could be promoted by fewer labour regulations, especially in developing countries.

Using difference-in-differences methodology Micco and Pages (2006) argued that EPL reduced job flows, mainly in more volatile sectors. However, they concluded that labour regulations do not robustly affect labour productivity – this result was contradictory to results from a study by Cingano *et al* (2010), which found negative impacts of EPL on labour productivity particularly in sector with high rates of labour reallocation. Boeri and Macis (2007), in a panel data analysis for the period 1980-2001, investigated whether unemployment insurance has allowed for more and better structural change to take place. They employed job creation, job destruction, job turnover, and sector reallocation to measure structural change. Their results indicated that introduction of unemployment insurance was associated with higher rates of turnover and labour reallocation across sectors.

It was also observed that among the developing countries, minimum wages and trade unions were the major channels through which higher labour regulations impacted adversely on growth. Griffith *et al.* (2006) in their own study analyzed the impact of product market competition on unemployment and wages, and how this depends on labour market institutions. They used differential changes in regulations across OECD countries over the 1980s and 1990s to identify the effects of competition. Thus, they argued that increased product market competition reduces unemployment, and that it does so more in countries with labour market institutions that increase worker bargaining power. The theoretical intuition is that both firms with market power and unions with bargaining power are constrained in their behaviour by the elasticity of demand in the product market. They further argued that increased competition on real wages could be beneficial to workers, but less when they have high bargaining power. Intuitively, real wages increased through a drop in the general price level, but workers with bargaining power lose out somewhat from a reduction in the rents that they had previously captured.

Blanchard and Wolfers (2000) investigated the joint effect of macroeconomic shocks and protective labour market in European countries and found that in the presences of adverse shocks, protective labour market institutions contributed to higher unemployment; the result which was consistent with that of Fitoussi *et al* (2000). In a similar study, Nickell et al (2002) in their study of OECD from 1961-1995 argued that changes in labour market institutions explained around 55 percent of the increase in European unemployment from the 1960s to the first half of 1990s. In a study which examined the effects of institutions and regulations on unemployment in

OECD, Baccaro and Rei (2007) failed to find any strong evidence of either direct or indirect effect of labour market institution on unemployment. It however found evidence of robust positive effect of union density on unemployment. Schindler (2009) opined that both the structure and sequencing of labour market reforms are important for labour market outcomes and the associated costs of reforms. In another study on EU countries, Tvrdon (2013) found two main institutional factors significantly influencing labour market performance and these are tax wedge on labour activities and active labour market polices. It shows that higher tax has positive correlation with unemployment, but active labour market polices have the tendency to offset the negative effect of high taxation.

In conclusion, evidenced from both the theoretical and empirical review, it is clear that the literature is inconclusive on the impact of institutions and regulatory framework on labour market outcomes. Most of the studies pay more attention to employment effect but less on productivity and wage or income effect. In addition, very few studies to the knowledge of the writer focus on Africa. In particular, it is difficult to identify a rigorous empirical study on Nigeria. Therefore, this study is an attempt at filling this noticeable gap.

4. Empirical Model and Data

Several methodological approaches have been adopted in the literature to analyse the impact of institutions and regulations on labour markets, with many studies adopting the use of dynamic estimation. The basic difference in the various approaches stems from measurement issues on how to appropriately capture institutional and regulatory factors. Also, the methods of analysis have been informed by the focus of particular studies. In this present study, our interest is to examine the effect of institutional and regulatory framework on employment, unemployment and wage determination. Consequently, the approach adopted follows that of Baccaro and Rei (2007) which is a modification of that of IMF (2003), Nickell *et al* (2001) and Nickell et al (2005). The model for unemployment is stated as

$$UNEMP_t = \alpha_0 + \sum_j \gamma_j X_{jt} + \sum_k \varphi_k Z_{kt} + \varepsilon_t \qquad (1)$$

where *UNEMP* denotes unemployment rate, X is a vector of institutional and macroeconomic variables, Z is vector of macroeconomic variables used as control, and ε is the random error term that captures unobservable factors that may influence unemployment. The subscript t is time

period, α, γ and φ are parameters to be estimated, and j and k connote observable numbers of variables in each of the vectors. In order to capture the dynamic behaviour of *UNEMP*, its lagged is introduced into the right hand side of the model. Hence, the dynamic form of the model is specified as,

$$UNEMP_t = \alpha_0 + +\alpha_1 UNEMP_{t-1} + \sum_j \gamma_j X_{jt} + \sum_k \varphi_k Z_{kt} + \varepsilon_t \qquad (2)$$

As noted earlier, one of the outcomes of labour market that is affected by the existence of institutions and regulation in Nigeria is employment generation, consequently, it is pertinent to empirically analyse how employment is impacted. The unemployment equation (2) is modified for employment. The impact of institution and regulation on employment is analysed at two levels. Firstly, the impact is examined at aggregate employment level, that is, on total formal sector employment, and secondly on public sector and industrial sector employment. The disaggregated analysis is crucial for a country such as Nigeria where the reaction of public and private sectors employers to institutional and regulatory changes varies significantly. The employment equation is stated thus

$$\Delta EMP_{i_t} = \alpha_0 + +\alpha_1 \Delta EMP_{i_{t-1}} + \sum_j \gamma_j X_{j,it} + \sum_k \varphi_k Z_{k,it} + \varepsilon_t, \qquad i = 1,2 \qquad (3)$$

where the *EMP* represents employment, measured in terms of total (aggregate) and sectoral (public and industrial) employment.

Finally, the effect of changing institutional and regulatory framework on real wage is examined. Institutions and regulations affect real wages in several ways and through various channels. For example, an effective increase in MW without corresponding rise in productivity could lead to upward pressure on inflation and thereby leading to decline in real wages. Similarly, as argued by Baccaro and Rei (2007), given the imperfect nature of labour market, impact of institution and regulation on unemployment is usually transmitted through wage channel. The wage equation is given as

$$\Delta RELW_{i_t} = \alpha_0 + +\alpha_1 \Delta RELW_{i_{t-1}} + \sum_j \gamma_j X_{j,it} + \sum_k \varphi_k Z_{k,it} + \varepsilon_t, \quad i = 1,2 \qquad (4)$$

Unlike that of employment, the real wage equation is estimated at sectoral level only in terms of average public sector and industrial sector wages.

The variables of the model are measures in different ways. Two variables, Union Density (UD) and Minimum Wage Index (MWI) are used as institutional and regulatory variables. The

UD variable is measured as proportion of union membership (total registered members of Nigerian Labour Congress (NLC) and Trade Union Congress (TUC)) to the total workforce[5]; and it is used as a measure of the degree to which employees are organized. Given the active nature of unionism in Nigeria, *UD* is meant to capture the impact of labour union on unemployment, employment and real wage. The variable is expected to have positive effect on real wages, however, the effect on unemployment and employment can be positive or negative, which depends on the reaction of employers across sectors (see Freeman and Medoff, 1984). Macroeconomic variables included in the model are national unemployment rate, inflation, real interest rate, and labour productivity growth. The kaitz-type index of minimum wage legislation is used as MW index. The index is measured as ratio of the minimum wage to average wage. This is measured at aggregate and sectoral levels, in which case for aggregate model the index is constructed as ratio of MW to average economy-wide wage, and for sectoral level, it is the ratio of MW to average sectoral wage. The index is expected to be negatively related to employment and positive with unemployment (Burkhauser et al, 2000). The measurement of all the variables is straightforward except for productivity growth which is measured in lagged as percentage change in productivity (proxied by GDP)[6]. Each of these variables works through different channels to affect the various labour market outcomes (see e.g., Nickell, 1997; Bertola et al, 2001; Belot and Van Ours, 2004; Nickell et al, 2005; Baccaro and Rei, 2007).

In all, the empirical model is estimated using static and dynamic analytical methods involving cointegration and Error Correction Model (ECM) estimation techniques as a means of investigating short-and long-run effects of institutional and regulatory measures on the specific labour market outcomes, this is in line with Downs et al (2000). Annual data covering 1970 to 2012 is used. The data for the study is sourced from various issues of the National Bureau of Statistics (NBS) annual abstract of statistics and the Central Bank of Nigeria (CBN) statistical bulletin.

5. Discussion of Result

5.1 Descriptive Analysis of Data

As a prelude to estimation of the empirical model a descriptive analysis and examination of the time series properties of variables are performed. In Table 1 the result of the descriptive analysis

[5] See Hayter and Stoevska, 2011.
[6] Both the UD and MW index are calculated for aggregate and sectoral levels.

of variables is presented. The result indicates that over the years average public sector employment has been greater than that of employment in the industrial sector, while mean wage in the industrial sector is higher than that of public sector. This is reflective of the prevailing situation in the country in which case government is the major employer in the formal sector, and that average wage in the industrial (private) sector is far above that of the public sector. Similarly, mean industrial sector union density is less than that of public sector; this is due to the fact that while public employees have freedom of joining union, membership in private sector is somehow restrictive. Further, the result shows that minimum wage index in the industrial sector is lower than that of public sector. This further reflect the little relevance of minimum wage in the industrial sector, since generally, industrial wages are usually above the national minimum wage on the average.

Table 1: Descriptive Analysis of Variables

V**ariable**	**Mean**	**maximum**	**Minimum**	**Std. Dev**
Industrial employment '000 (Emp_{in})	3,056	7,007	3,009	1,520
Industrial MWI (MWI_{in})	0.077	0.251	0.012	0.059
Industrial union density (UD_{in})	0.333	0.449	0.256	0.05
Industrial wage '000 (W_{in})	4,970	11,800	216.241	2,294
Inflation (*Inf*)	19.36	72.84	3.46	16.57
Average Minimum wage index (*MWI*)	0.181	0.351	0.101	0.065
Public employment '000 (Emp_{pu})	6,466	16,632	2,364	4,310
Public MWI (MWI_{pu})	0.284	0.482	0.185	0.087
Public union density (UD_{pu})	0.468	0.66	0.217	0.415
Public wage (W_{pu})	9,936	49,805	191.56	14,738
Real GDP growth (*GRGDP*)	1.813	22.173	15.458	6.037
Real interest (*RIR*)	-1.96	25.13	-32.057	13.455
Total employment '000 (*Emp*)	31,458	54,472	17,230	12,941
Trade openness (*Openness*)	0.423	1.139	0.055	0.282
Unemployment (*Unemp*)	8.644	23.9	1.93	5.582
Union density (*UD*)	0.4	0.499	0.254	0.076

5.2 Unit Root Test Results

Further, time series properties of variables are examined by performing unit root test as a means of verifying the stability and ability of each variable to converge to its equilibrium value. The results in Table 2 show that most of the variables are integrated of order one, I (1) and non-stationary at their actual level, with the exception of inflation, industrial minimum wage index, real interest, and average industrial sector wage that are stationary at their original level, that is, I (0). This implies that the bulk of the variables have noise and exhibit the tendency of not easily reverting to their equilibrium mean values in the short-run.

Table 2: Unit Root Test Result

	Augmented Dickey-Fuller (ADF)		**Phillips-Perron (PP)**		
Variable	**Level**	**First Difference**	**Level**	**First Difference**	**Order of Stationarity**
Emp	0.294	-6.465	0.309	-6.473	I (1)
Emp_{in}	-1.649	-6.092	-1.841	-6.092	I (1)
Emp_{pu}	-1.044	-6.187	-1.057	-6.185	I (1)
$GRGDP^{*}$	-2.626	-5.018	-6.025	-	I (1)
Inf	3.235	-	-3.067	-	I (0)
MWI	-1.728	-7.140	-1.738	-7.143	I (1)
MWI_{in}	-3.298	-	-3.325	-	I (0)
MWI_{pu}	-1.525	-6.216	-1.568	-6.216	I (1)
Openness	-1.006	-7.877	-0.824	-7.967	I (1)
RIR	-5.821	-	-5.821	-	I (0)
UD	-1.302	-3.506	-1.476	-5.347	I (1)
UD_{in}^{*}	-2.855	-6.862	-2.961	-	I (1)
UD_{pu}	-0.532	-5.633	-0.720	-5.632	I (1)
Unemp	0.008	-5.357	0.151	-5.139	I (1)
W_{in}	-4.537	-	-3.631	-	I (0)
W_{pu}	2.482	-10.099	1.751	-9.571	I (1)

Notes: 1) * ADF test indicates non-stationary series while PP indicates stationarity.
2) 5% critical value for rejection of null hypothesis of non-stationarity for both ADF and PP is -2.933.

5.3 Cointegration Test Result

Given the unstable nature of series of the empirical model, and in line with Engel and Granger (1991) argument, cointegration test is carried out to ascertain the possibility of joint cointegration (long-run relationship) of linear combination of the variables in each of the empirical models. The Johansen cointegration test results indicate that at least one cointegrating vector could be found in the unemployment model, at least two cointegrating vectors exist in the aggregate employment and public employment models, whilst at least one could be found in the industrial employment model. Similarly, not less than two cointegerating vectors exist in both industrial sector and public sector wage models. In all, the cointegration test results indicate that variables in all the models have joint long-run relationship, and are therefore suitable for making long term prediction.

5.4 Unemployment Regression

The result of the parsimonious ECM regression of unemployment equation is provided in Table 3. The result provides important insights on the relationship between institutional and regulatory variables and unemployment. First, it is shown that the previous level of unemployment has significant (10 percent) positive effect on current unemployment rate. It indicates the persistency of unemployment in the country. Similarly, previous level of economy-wide minimum wage index exacts negative impact on unemployment. This reflects that the higher the influence of minimum wage legislation, the more employers are likely to reduce their work force, thereby increasing unemployment level. The results also reveal that union density has insignificant positive effect on unemployment. Intuitively, this result can be related to the fact that as more workers join labour union, the higher the probability for employers to react negatively either through reducing employment or even threaten workers with dismissal, which may lead to upward pressure on unemployment.

Out of all the macroeconomic determinants included in the model, only productivity growth (growth rate of GDP) has positive relationship with unemployment, while other ones are negatively related with it. The positive relationship between unemployment and productivity growth can be explained by the economic reality of Nigeria in which case there has been persistent growth with unabated unemployment. However, it is worthy to note that none of the macroeconomic variables has any significant effect on unemployment. In general, the

insignificant effect of the macroeconomic variables on unemployment may be due to the structure of the economy which is largely driven by oil. The error correction variable (ECM) is negatively signed and significant, indicating the speed of adjustment of the unemployment equation.

Table 3: Unemployment Regression Result

Dependent variable: Unemp				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Constant	0.390	0.371	1.052	0.3006
$Unemp_{-1}$	0.379	0.218	1.740	0.0916
MWI_{-1}	-16.717	6.466	-2.585	0.0145
UD	2.106	7.018	0.300	0.7661
$GRGDP_{-1}$	0.018	0.030	0.604	0.5500
Inf	-.0.005	0.015	-0.365	0.7173
Openness	-0.867	1.948	-0.445	0.6592
RIR_{-1}	-0.008	.020	-0.410	0.6592
Ecm_{-1}	-0.301	0.136	-2.220	0.0336
$\overline{R}^2$	0.316			
SER	1.310			
DW	2.116			

Notes: 1) All variables are regressed at the level at which they are stationary

5.5 Employment Regression

As stated earlier, the employment equation is estimated at three different levels: aggregate (economy-wide); industrial sector; and public sector levels. From the aggregate employment regression results in Table 4, it is shown that average minimum wage index is negatively related to employment, although there is no significant relationship between the two, which reflect that minimum wage legislation has a reducing effect on aggregate employment level. The result also shows that productivity growth has negative relationship with employment, which confirms the relationship between the former and unemployment as depicted above. This is indicative of the

Table 4: Employment Regression Results

Dep. Variable	Aggregate Emp.	Industrial Emp	Public Emp
Emp_{in-1}		0.737 (1.984)*	
Emp_{pu-1}			0.144 (0.764)
MWI	-23.982 (-1.045)		
MWI_{-1}	-33.076 (-1.514)		
MWI_{in}		-57.496 (-2.594)*	
MWI_{in-1}		32.146 (1.707)*	
MWIpu			-35.178 (-0.865)
UD_{in}		24.103 (0.927)	
UD_{pu}			24.247 (0.703)
GRGDP	-0.104 (-1.035)		-0.2.57 (-1.187)
GRGDP-1		-0.846 (-0.594)	
Inf	0.054 (0.764)	0.818 (1.035)	
Inf-1	-0.064 (-1.036)		
Openness		5.009 (0.606)	
Openness-1		-5.445 (-5.312)***	37.632 (2.519)*
RIR	0.145 (1.940)*		0.213 (1.669)
RIR-1	-0.181 (-2.718)*	2.240 (2.203)*	-0.260 (-2.055)*
Ecm-1	-1.282 (-6.667)***	-1.756 (-4.567)***	-1.250 (-4.638)***
$\overline{R}^2$	0.690	0.743	0.589
SER	4.183	54.614	8.989
DW	2.172	1.786	1.824
Observ.	41	41	41

Notes: 1) All variables are regressed at the level at which they are stationary
2) t-statistic in parenthesis; *, **, *** indicate 10%, 5%, and 1% significance levels

increasing level of unemployment in spite of the continuous economic growth being experienced in the country in the past decade. The coefficients of the one year lagged values of inflation and real interest rate are also negatively related with aggregate employment. The relationship between unemployment and inflation establishes the validity of Philips curve hypothesis in the country.

The result of the industrial sector employment regression indicates that there is a mixed effect of minimum wage index on employment in the industrial sector; while current value of the index has significant reducing effect on employment; previous level of the index has the reverse impact. The result also shows that union density has positive but non-significant effect on the sector's employment. This implies that although as more people join the work force the higher the probability of them becoming union members, the increase in union membership does not have a meaningful influence on industrial sector employment level. Other macroeconomic determinants of employment level, that is, inflation, trade openness and real interest rate are all also positively related with industrial sector employment. The result of the public sector employment regression is not significantly different from that of the industrial sector with the exception that the minimum wage index has a clear negative relationship with employment in the sector. In all the results, the coefficient of the error correction term is rightly signed and significant.

5.6 Wage Regression

Two different estimations are obtained for the wage equation and these are for industrial sector and public sector. The result (Table 5) from the industrial wage estimation shows that minimum wage index has significant positive impact on wage, indicating that as minimum wage rises there is also the tendency for industrial sector wage to rise. Further, the result reflects that although union density is positively related to wage in the industrial sector, it has little or no effect on wage determination in the sector. Inflation, openness and real interest all have negative relationship with wage; however, the relationship between openness and wage is not significant. This implies that increase in these variables has reducing effect on real industrial wage. The result obtained from the public sector wage regression is similar to that of the industrial sector, but none of the institutional and regulatory variable has any important impact on public sector

wage. This is not unexpected because the rate of adjustment of public sector wage to union pressure and minimum wage index is sluggish.

Table 6: Wage Regression Results

Dep. Variable	Industrial Wage	Public Wage
W_{in-1}	0.147 (1.029)	
MWI_{in}	6.401 (2.319)**	
MWI_{in-1}	10.588 (3.803)***	
MWI_{pu}		5.520 (0.622)
MWI_{pu-1}		10.558 (1.212)
UD_{in}	5.601 (1.517)	
UD_{pu}		2.232 (0.276)
GRGDP		-4.730 (-0.898)
Inf	-2.296 (-1.807)*	-1.652 (-0.544)
Inf-1	-1.619 (-1.597)	
Openness	-2.794 (-0.715)	
Openness-1		-3.769 (-1.017)
RIR	-2.456 (-1.740)*	4.446 (1.195)
RIR_{-1}		-7.502 (-2.030)*
Ecm-1	-1.247 (-5.726)***	-1.054 (-5.753)***
$\overline{R}^2$	0.666	0.470
SER	77.698	221.850
DW	2.286	2.081
Observ.	41	41

Notes: 1) All variables are regressed at the level at which they are stationary
2) t-statistic in parenthesis; *, **, *** indicate 10%, 5%, and 1% significance levels

6. Conclusion

This paper has attempted to investigate the impact of institutions and regulatory framework on labour market outcomes in Nigeria focusing on unemployment, employment and wage effects. Kaizt –type index of minimum wage legislation and union density are the two measures used to capture institution and regulation effect. Dynamic models are specified for unemployment, employment and wage which are estimated using cointegration and ECM estimation techniques. Empirical result from the study indicated that minimum wage index has significant positive impact on unemployment. Union density which is used to capture the effect of labour union has positive but unimportant effect on unemployment.

In terms of employment effects of institution and regulation, the study has been able to show that minimum wage index has negative but insignificant effect on aggregate employment, has mixed effect on industrial sector employment, and non-significant negative impact on public sector employment. On the other hand, union density has non-significant positive effect on employment across sectors. Minimum wage has highly significant positive impact on industrial sector wage, but the effect on public sector wage is not significant. Labour union effect, as measured by union density has insignificant positive impact on wage in both industrial and public sectors.

An important policy lesson emanating from the study is although that institution and regulatory framework are usually put in place for specific purpose; they have different effect on different labour market outcomes across public and private sectors. Consequently, the design and implementation of institutional and regulatory framework should done with caution, as they may yield unintended results.

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